



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,003	12/03/2003	Juanita M. Cassidy	2002-IP-008502U1	4501
71/407 ROBERT A. KENT P.O. BOX 1431 DUNCAN, OK 73536	7590 07/18/2008		EXAMINER CONLEY, SEAN EVERETT	
			ART UNIT 1797	PAPER NUMBER
			NOTIFICATION DATE 07/18/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ROBERT.KENT1@HALLIBURTON.COM
Tammy.Knight@Halliburton.com

Office Action Summary

Application No.

10/727,003

Applicant(s)

CASSIDY ET AL.

Examiner

SEAN E. CONLEY

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 25-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 and 25-32 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 4/24/2008
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed April 24, 2008 has been received and considered for examination. Claims 1-12 and 25-32 are pending with claim 12 being withdrawn from consideration for being directed to a non-elected species.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on April 24, 2008 was filed after the mailing date of the non-final rejection on January 28, 2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Allowable Subject Matter

3. The indicated allowability of claim 2 is withdrawn in view of the newly discovered reference(s) to Treybig et al. (U.S. Patent No. 4,784,796). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102/103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1797

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 3-11 and 26-32 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Walker (U.S. Patent No. 5,366,643).

With respect to claims 1 and 32, Walker discloses a method of inhibiting corrosion of a metal surface contacted by an aqueous acid solution comprising: combining a corrosion inhibiting composition with the aqueous acid solution and contacting the metal surface, such as a metal surface in a subterranean formation, with the aqueous acid solution containing the corrosion inhibiting composition (see col. 1, lines 15-20). The corrosion inhibiting composition comprises the reaction product of an alpha, beta-unsaturated aldehyde with a primary or secondary amine (see col. 2, lines 30-67; see examples I-IV). Walker further discloses that the materials used to form the reaction product may be added in any order to the reaction vessel (see col. 9, lines 10-23). Therefore, the alpha, beta-unsaturated aldehyde and the primary or secondary amine may be added first thus reacting to form an imine. In the event that a reaction product comprising an imine has not been shown with sufficient specificity in the disclosure of Walker, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a reaction product by first adding the aldehyde and ethanolamine disclosed by Walker (see example I) to the reaction vessel first, thus forming an imine, prior to adding the rest of the materials as shown in example I, since Walker discloses that the materials may be added in any order to the reaction vessel.

With respect to claim 3, Walker discloses that the metal surface comprises N-80 steel (see examples I-IV).

With respect to claim 4, Walker discloses that the alpha, beta-unsaturated aldehyde comprises cinnamaldehyde (see col. 5, lines 57-66).

With respect to claim 5, Walker discloses that the primary or secondary amine comprises ethanolamine (see table III).

With respect to claim 6, Walker discloses that the reaction product results from a reaction of the primary or secondary amine with the alpha,beta-unsaturated aldehyde at a molar ratio of amine to aldehyde or ketone in the range of from about 0.1:1 to about 4:1. Specifically, Walker discloses 0.3 moles of ethanolamine and 0.66 moles of an aldehyde which fall within the claimed ratio (see example I and tables I-V).

With respect to claim 7, Walker discloses that the corrosion inhibiting composition is combined with the aqueous acid solution in an amount in the range of from about 0.01% to about 5% by weight of the aqueous acid fluid. Specifically, Walker discloses that the inhibitor composition is present in an amount from about .1 to about 20 gallons per 1000 gallons of aqueous acidic solution which falls within the claim range (see col. 8, lines 20-35).

With respect to claim 8, Walker discloses that the corrosion inhibiting composition further comprises a solvent or a surfactant (see col. 7, lines 40-60). With respect to claims 9 and 10, Walker discloses that that the aqueous acid solution is 15% hydrochloric acid. It is well known that a 15% solution of hydrochloric acid means that the solution is 15% hydrochloric acid and the remainder is water (see examples I-IV).

With respect to claims 11 and 25, Walker discloses in the examples that the metal coupon is exposed to the aqueous acid solution at temperatures of about 300°F,

wherein the hydrochloric acid is at a concentration of about 15% by weight of the solution (see example I; see column 9).

With respect to claims 26-31, Walker discloses that the corrosion inhibiting composition may further comprise acetylenic alcohol (see col. 7, lines 1-24), carbonyl compounds (see col. 5, lines 10-25), and formamide (see table IV).

Claim Rejections - 35 USC § 103

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker as applied to claim 1 above, and further in view of Treybig et al. (U.S. Patent No. 4,784,796).

Walker discloses the claimed invention except for the step of separately adding the aldehyde or ketone and the amine to water used to from the aqueous acid solution.

Treybig et al. disclose a process of forming a corrosion inhibitor by first reacting an alpha, beta-unsaturated aldehyde with a primary amine to form an imine (see col. 2, lines 35-47; see col. 5, lines 17-51). Treybig et al. further discloses that the amine is first dissolved in a suitable solvent in a reaction vessel. The solvent being water is mixed with the amine. Then a solution of unsaturated aldehyde is contacted with the amine solution (see col. 5, lines 3-28). This reaction results in the formation of an imine which is suitable for use as a corrosion inhibitor (see col. 5, lines 38-42).

Therefore, because both Walker and Treybig et al. teach a process for forming a corrosion inhibiting composition suitable for preventing corrosion of metals in oil well materials, it would have been obvious to one skilled in the art to substitute one process

of forming the corrosion inhibiting composition for the other to achieve the predictable result of preventing corrosion of metals in oil well applications.

Response to Arguments

8. Applicant's arguments filed April 24, 2008 have been fully considered but they are not persuasive.

The applicant argues that the corrosion inhibiting compositions of Walker are reaction products of at least four different reactants that will form different reaction products than required by the present claims (a reaction product that comprises an imine, a hemiaminal, an iminium ion, or combinations thereof).

The examiner respectfully disagrees. Walker discloses that the reactants may be added in any order to the reaction vessel (see col. 9, lines 20-23; example 1). Therefore, the aldehyde or ketone may be added first prior to the addition of the amine. Then when the amine is added the ingredients will react and form an imine prior to addition of the remaining reactants. Thus the reaction product comprises an imine when the disclosed aldehyde and ethanolamine are used as the reactants.

In addition, the newly cited prior art reference to Treybig et al. clearly discloses the formation of a reaction product that comprises an imine by reacting an unsaturated aldehyde with a primary amine to form an imine (see col. 2, lines 35-47; see col. 5, lines 3-51).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Conley whose telephone number is 571-272-8414. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 14, 2008

/Sean E Conley/
Primary Examiner, Art Unit 1797